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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,383	12/12/2003	Jun Han Ahn	0465-1115P	8538

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EXAMINER	
FLANDERS, ANDREW C	

ART UNIT	PAPER NUMBER
2615	

NOTIFICATION DATE	DELIVERY MODE
04/02/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/733,383	AHN ET AL.	
	Examiner	Art Unit	
	ANDREW C. FLANDERS	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claims 1 – 14 are objected to because of the following informalities:

The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 – 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nordqqvist (U.S. Patent 6,862,359).

Regarding **Claim 1**, Nordqvist discloses:

An apparatus for automatically switching an audio mode (i.e. a hearing prosthesis that adjusts audio output depending on the environment; abstract), the apparatus comprising:

a preprocessing part for collecting sample audio data in advance (temporal and spectral characteristics of a predetermined sound source may be obtained based on real-life recordings of one or several representative sound sources; col. 8 lines 12 – 23).

Nordqvist does not explicitly disclose then analyzing a feature of the sample audio data and extracting features according to kinds of audios. However, Nordqvist does disclose that the system stores predetermined sound sources/Hidden Markov Models in col. 5 lines 28 – 52. These models are obtained and stored in advance for comparison to the listeners' current environment; col. 2 lines 53 - 67. Nordqvist, however, is silent as to how these are obtained. However, Nordqvist does disclose analyzing features of sample audio data and extracting features according to kinds of audios (i.e. the processing means are adapted to extract feature vectors that represent predetermine signal features of the consecutive signal frames; col. 3 lines 54 – 67. These extractions, however, are done on the instant listening position. It would have been obvious to also apply these extractions to the initial obtaining of the associated hidden Markov models disclosed in col. 8. It would be desirable to measure and create these predetermined models in the same manner as the measuring would be achieved in the actual listening environment to ensure proper signal recognition.

Nordqvist further discloses:

an audio mode determining part for pattern-matching an input listening audio feature with the features according to the kinds of audios to determine the kind of the listening audio (i.e. the processing means are adapted to extract feature vectors that represent predetermined signal features of the signal frames, these vectors are then

compared to Hidden Markov Model's associated with real life listening environments; cols. 3 and 4) and automatically switch the audio mode according to the determined audio kind (i.e. switching between different present programs to adapt the hearing prosthesis to a user's current listening environment; col. 1 lines 15 – 20).

Regarding **Claim 2**, in addition to the elements stated above regarding claim 1, the modification of Nordqvist further discloses:

wherein the preprocessing part comprises:

a sample audio database for collecting and storing the sample audio data (i.e. the predetermined model's are obtained as stated above regarding claim 1, these model's are stored in a designated area of memory col. 7 lines 9 – 19; since these model's are stored in memory for later use, they can be retrieved at a later time, this retrieve requires identification and thus the storing/retrieving/identifying model's a typical database);

a first feature extracting part for extracting the feature of the sample audio data stored in the sample audio database (i.e. the processing means to extract feature vectors as applied to the predetermined environments; likely at the time of fitting or manufacturing; see above claim 1); and

an audio kinds sorting part for sorting the features of the sample audio data extracted from the first feature extracting part according to preset audio kinds (i.e. the stored feature vectors are associated with various listening environments; col. 5; these

features must be extracted and arranged {sorted} in some manner in order to allow comparison with data from the input to be analyzed).

Regarding **Claim 3**, in addition to the elements stated above regarding claim 2, the modification of Nordqvist further discloses:

wherein the first feature extracting part extracts the features of the sample audio data by using any one selected from the group consisting of ICA (Independent Component Analysis), PCA (Principle Component Analysis), clustering, and vector quantization (i.e. vector analysis is used; col. 3).

Regarding **Claim 4,** in addition to the elements stated above regarding claim 2, the modification of Nordqvist further discloses:

wherein the audio kinds sorting part sorts the audio kinds by using either a learning model or a statistical model (i.e. the piece/vectors extracted are used for a probability {statistical} comparison, as stated above they must be arranged {sorted} in some manner to allow for comparison).

Regarding **Claim 5**, in addition to the elements stated above regarding claim 2, the modification of Nordqvist further discloses:

wherein the audio mode determining part comprises:

a second feature extracting part for extracting the feature of the listening audio if the listening audio is inputted (i.e. the processing means adapted to extract feature

vectors from the audio input signal col. 3; not the means used in the modification to produce the classification results stated above);

a pattern matching part for pattern-matching the feature of the listening audio with the features according to the kinds of audios sorted by the preprocessing part (i.e. determining classification results based on the Hidden Markov Models of the input signal as compared to the pre-stored results; entire background);

an audio sorting determining part for determining an audio kind that is the most similar to the feature of the listening audio from a result of the pattern-matching of the pattern- matching part (i.e. producing a sequence {sorted} of probability values represented by a numerical value; col. 5) ; and

an audio mode switching part for automatically switching a current listening audio by using an audio mode of the audio kind determined from the audio sorting determining part i.e. automatic parameter adjustment; cols 1 lines 15 – 20 and co. 2 lines 53 – 67).

Regarding **Claim 6**, in addition to the elements stated above regarding claim 5, the modification of Nordqvist further discloses:

wherein the second feature extracting part extracts the features of the listening audio by using any one selected from the group consisting of ICA (Independent Component Analysis), PCA (Principle Component Analysis), clustering, and vector quantization (i.e. vector analysis is used; col. 3).

Regarding **Claim 7**, in addition to the elements stated above regarding claim 5, the modification of Nordqvist further discloses:

wherein the pattern-matching part utilizes any one selected from the group consisting of dynamic programming, HMM (Hidden Markov Model) method, and neutral network method (i.e. the system uses Hidden Markov Model's).

Claims 8 – 14 claim the method for operating the apparatus claimed in claims 1 – 7 and are rejected under the same grounds as stated above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANDREW C. FLANDERS whose telephone number is (571)272-7516. The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on (571) 272-7546. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Acf

/Sinh N Tran/
Supervisory Patent Examiner, Art Unit 2615